



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(54) Title: RIGGING SCREW DEVICE</b>					
(57) Abstract					
<p>The invention relates to a device (1) at a rigging screw (2) which comprises end screws (3, 4) with thread portions (5, 6) with right-handed thread and left-handed thread respectively and an intermediate nut (7) connecting said end screws, which nut is provided with nut thread portions (8, 9) for co-operation with said screw thread portions (5, 6) and that one of the end screws (3) is provided with an internal receiving space (10) for reception of a protruding part (11) of the rigging screw (2) which is insertable into it. According to the invention, said second end screw (3) is provided with a hole shaped wire holder (21) at the front part (3A) of said one end screw (3). The internal receiving space (10), which is formed of an axial cavity (10) for reception of an axially protruding part (11) of said second end screw (4), and transcending into the hole shaped wire holder (21), is aimed opposite to the hole shaped wire holder (21) at the front part (3A) of said one end screw (3) wherein the main part of said one end screw (3) with appurtenant wire holder (21) is arranged received screwed into the intermediate nut (7), when the rigging screw (2) is screwed together to a compact condition.</p>					

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Rigging screw device

The present invention concerns a device at a rigging screw which comprises end screws with thread portions with right-handed thread and left-handed thread respectively and an intermediate nut connecting said end screws which nut is provided with nut thread portions for co-operation with said screw thread portions and that one of the end screws is provided with an internal receiving space for reception of a protruding part of the rigging screw which is insertable into it.

The German patent publication No. 2310152, exhibits a nut which can not at all completely receive the one end screw but instead letting a large portion stick out. NO, B, 162929 shows a rigging screw with internal wire holder in the one end of the rigging screw. This Norwegian solution exhibits an attachment which totally extends a great deal outside the nut and which lack external thread means. In greater detail, it relates to a rigging screw where a wire holder is formed by a tube with inner located threads with which a screw with a head co-operates in order to hold fixed only the end of the wire holder inside in the inner sleeve part of the rigging screw. Known rigging screws are bulky and it is desirable to be able to conceal the attachment of a wire at rigging screws, especially when using the rigging screw on board vessels in connection with standing rigging.

The main object of the present invention is to provide a rigging screw which is compact and which exhibits a long stroke.

Said object is achieved by means of a device according to the present invention, which is principally characterized in

that said end screw is provided with a hole shaped wire holder at the front part of said one end screw, that the internal receiving space, which is formed of an axial cavity for reception of an axially protruding part of said second end screw, and transcending into the hole shaped wire holder, is aimed opposite to the hole shaped wire holder at the front part of said one end screw wherein the main part of said one end screw with appurtenant wire holder is arranged received screwed into the intermediate nut, when the rigging screw is screwed together to a compact condition.

The invention is described in the following with reference to the accompanying drawings, in which

Fig 1 shows a perspective view of a rigging screw in screwed out condition,

Fig 1A shows a sectional view of the rigging screw in a connected screwed in end position,

Fig 2 shows an exploded view of the current rigging screw,

Fig 2A shows a side view of the rigging screw in connected screwed in end position,

Fig 3 shows a sectional view of the rigging screw in connected screwed out end position,

Fig 4 shows a plan view of the rigging screw,

Fig 5 shows one of two end screws in perspective,

Fig 6 and 7 shows said end screw in section and from the front respectively,

Fig 8 shows an intermediate nut in section, from the front and in perspective view respectively, and

Fig 9 shows the second end screw which is a part of the rigging screw, in section, from the front and one end respectively.

A device 1 according to the present invention at a rigging screw 2 which comprises end screws 3, 4 with thread portions 5, 6 having right-handed thread and left-handed thread respectively and a said two end screws 3, 4 connecting intermediate nut 7 which is provided with nut thread portions 8, 9 for co-operation with said screw thread portions 5, 6, including that one of the end screws 3 is provided with an internal receiving space 10 adapted for reception of a protruding part 11 of the rigging screw 2 which is insertable into it.

Said internal receiving space 10 at said one end screw 3 is formed by an axially extending cavity 10 which is intended for reception of an axially extending part 11 of said second end screw 4 which is comprised in the pair of end screws 3, 4.

Thus, said second end screw 3 exhibits a hole shaped wire holder 21 at the front part 3A of said one end screw 3, wherein the internal receiving space 10, which is formed by an axial cavity 10 for reception of an axially projecting part 11 at said second end screw 4, and which transcends into the hole shaped wire holder 21, is aimed opposite to the hole shaped wire holder 21 at the front part 3A of said one end screw 3. The main part of said one end screw 3 with appurtenant wire holder 21 is then arranged received screwed into the intermediate nut 7, when the rigging screw 2 is screwed together to a compact condition,

Fig 1A, 1B.

A locking ring 13 is arranged at one of the outer ends 7A of the intermediate nut 7, cooperable with the thread portion 5 of the one end screw 3, in order to restrict screwing out said end screw 3 out of the intermediate nut 7 when this intermediate nut 7 rotates in the direction of screwing out and said thread

portions 5, 8 cooperate with each other so that said end screw 3 is screwed out of the nut 7 in the direction 14 of screwing out.

Further, a locking washer 15 is arranged at the axially projecting, threaded 6 end screw part 11 of the second end screw 4 which may be screwed into the internal space 16 of the intermediate nut 7, in order to restrict screwing out said end screw 4 out of the intermediate nut 7 in the direction 17 of screwing out. The locking washer 15 is attached to said end screw 4 by flaring out a flange formed outer part 18 of said end screw 4 over the locking washer 15 at its centre hole.

The function of the rigging screw 2 is such that both end screws 3, 4 are held still so that they do not turn while the intermediate nut 7 is turned in the desired direction of rotation 19, 20 in order to be screwed out at each end 7A, 7B of the intermediate nut 7 or into the intermediate nut 7 respectively. The combination of right-handed and left-handed threads make the parts 3, 4, 7 of the rigging screw 2 according to prior art will ride apart/together depending upon in which direction 19, 20 which the intermediate nut is screwed.

Preferably, the shown end screw 3 is provided with a right-hand threaded part 5 and the second end screw 4 is provided with a left-hand threaded part 6.

Said protruding tapering part 11 of the second end screw 4 is received at least partly in the centre cavity 10 of the one end screw 3, which contributes to the rigging screw 2 being compact in screwed together condition at the same time as however a long stroke is provided when screwing out the end screws 3, 4 in the direction from each other 14, 17.

The internal receiving space 10 transcends into a hole shaped wire holder 21 at the front part 3A of the one end screw.

The screwable parts 3, 4, 7 of the rigging screw 2 are provided with a grip portion 22, 23, 24 which fits a stop means which grip portions preferably are formed by flat surfaces which are arranged to cooperate with corresponding surfaces in a 5 reception tube for the rigging screw 2.

The rigging screw 2 is suitable for application at standing rigging on vessels for the purpose of being able to make simple adjustments to the length of a wire on board a boat.

The rigging screw 2, which may not screw itself apart 10 because of the flat surfaces 22-24 of all parts 3, 4, 7, which thereby cooperate with corresponding flat surfaces in a protective tube in which the rigging screw is located, is easily accessible by unfastening a rigging bolt from the tube which is pushed up so that the rigging screw 2 is uncovered for 15 adjustment.

The invention is not limited to the above described and in the drawings shown embodiments but may be varied within the scope of the accompanying claims without departing from the inventive concept.

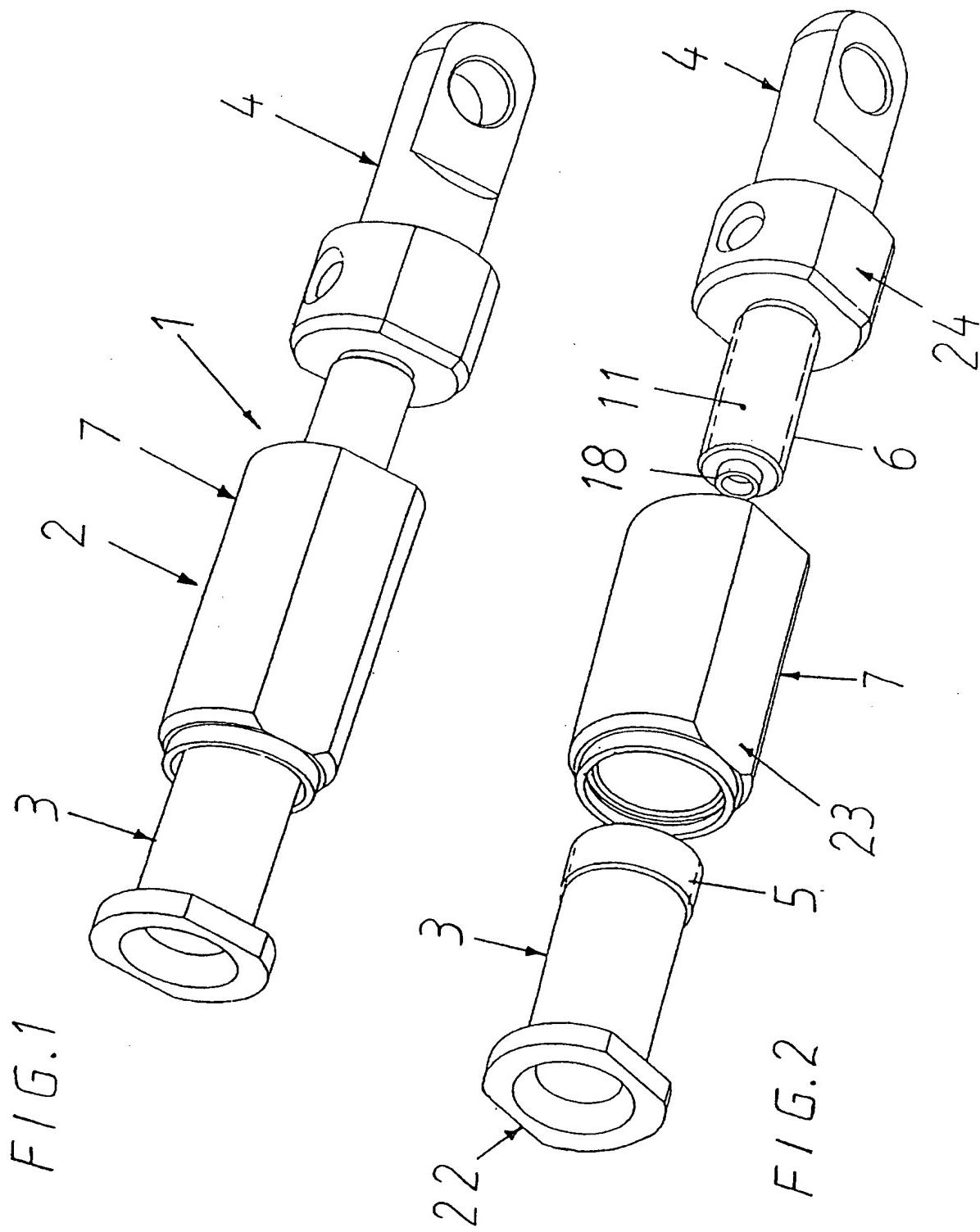
C l a i m s

- 5     1.     A device (1) at a rigging screw (2) which comprises end screws (3, 4) with thread portions (5, 6) with right-handed thread and left-handed thread respectively and an intermediate nut (7) connecting said end screws which nut is provided with nut thread portions (8, 9) for co-operation with said screw  
10    thread portions (5, 6) and that one of the end screws (3) is provided with an internal receiving space (10) for reception of a protruding part (11) of the rigging screw (2) which is insertable into it, **characterized in that** said second end screw (3) is provided with a hole shaped wire holder (21) at the front part (3A) of said one end screw (3), that the internal receiving space (10), which is formed of an axial cavity (10) for reception of an axially protruding part (11) of said second end screw (4), and transcending into the hole shaped wire holder (21), is aimed opposite to the hole shaped wire holder (21) at the front part (3A) of said one end screw (3) wherein the main part of said one end screw (3) with appurtenant wire holder (21) is arranged received screwed into the intermediate nut (7), when the rigging screw (2) is screwed together to a compact condition (Fig 1A, 1B).
- 15    2.     A device according to claim 1, **characterized in that** a locking ring (13) is arranged at the outer end (7A) of the intermediate nut (7) cooperable with the thread portion (5) of the one end screw (3), in order to restrict screwing out said end screw (3) out of the intermediate nut (7).
- 20    3.     A device according to any one of claims 1-2,  
**characterized in that** a locking washer (15) is arranged at the

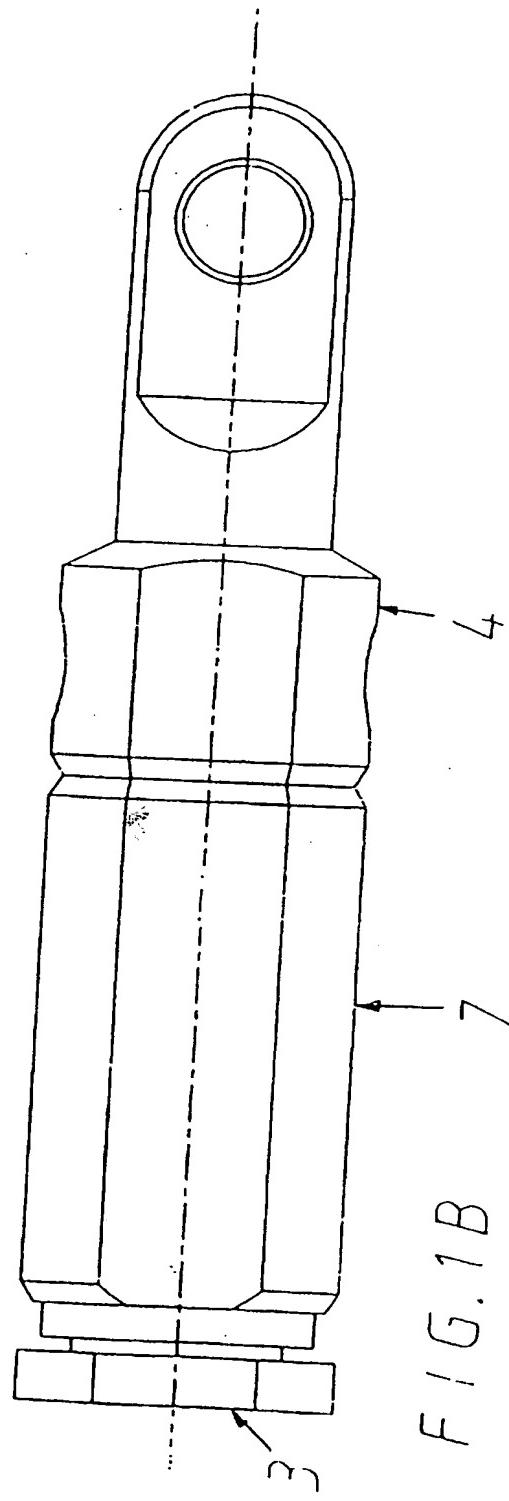
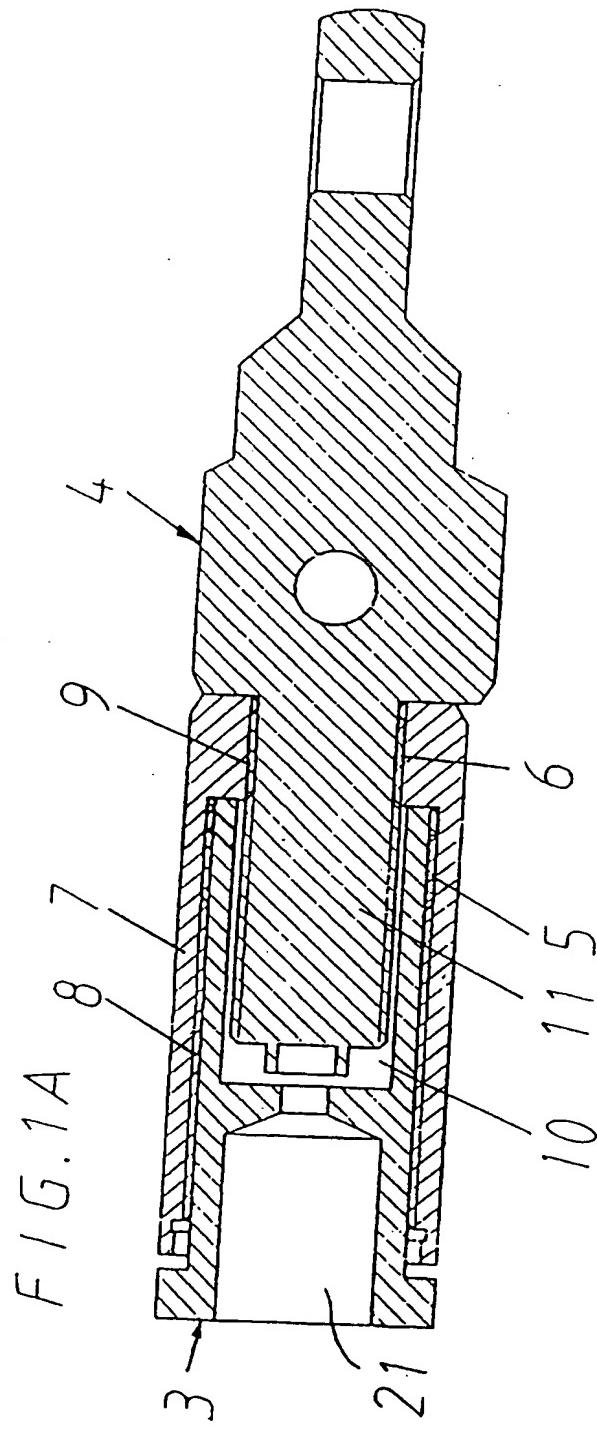
axially projecting, threaded (6) end screw part (11) of the second end screw (4) which may be screwed into the internal space (16) of the intermediate nut (7), in order to restrict screwing out said end screw (4) out of the intermediate nut (7).

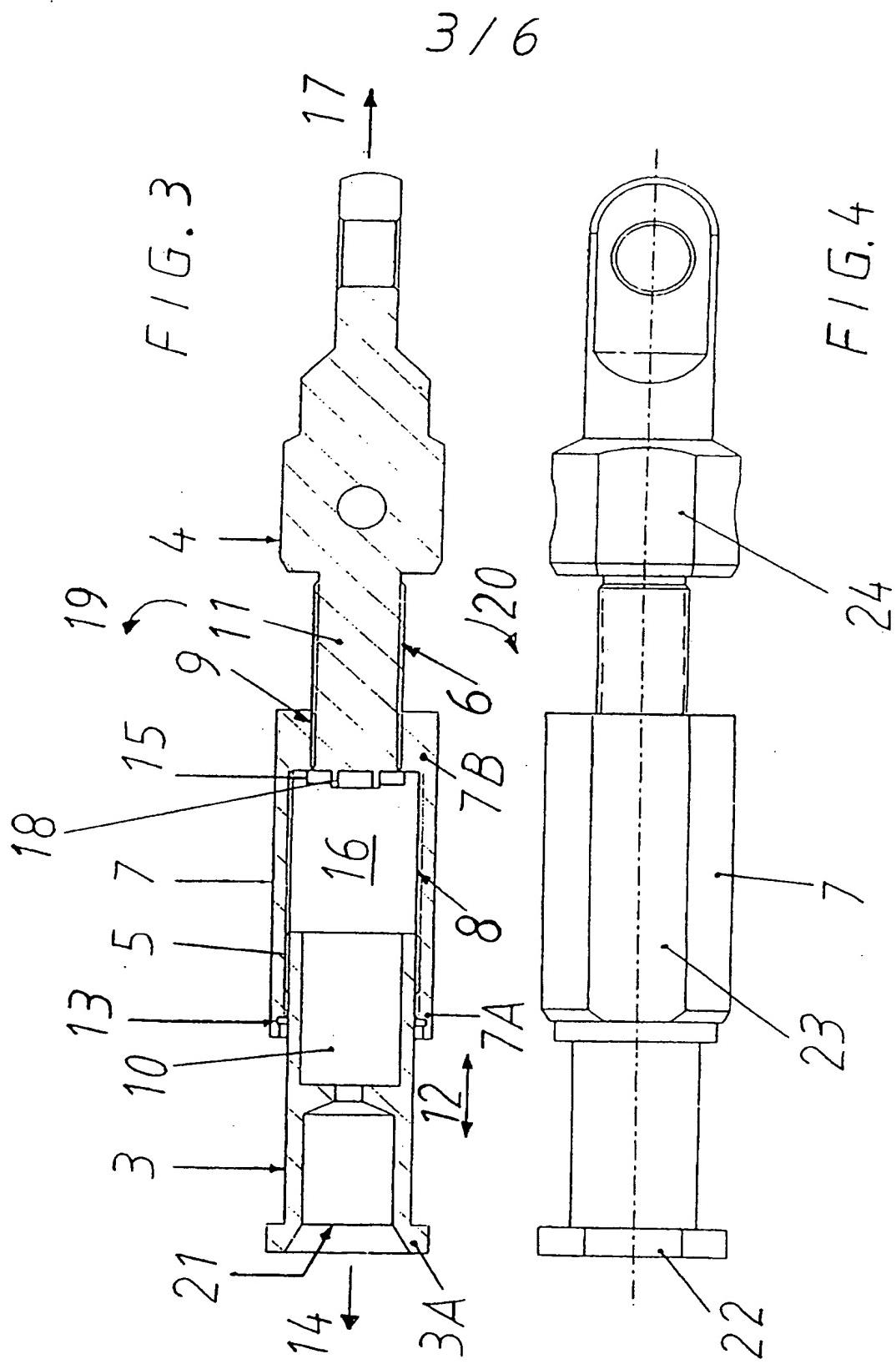
- 5 4. A device according to any one of claims 1-3 characterized in that the screwable parts (3, 4, 7) of the rigging screw (2) are provided with a grip portion (22, 23, 24) which fits a stop means.
5. A device according to claim 4, characterized in that  
10 said grip portions are formed by flat surfaces (22-24) which are arranged to cooperate with corresponding surfaces in a reception tube for the rigging screw (2).

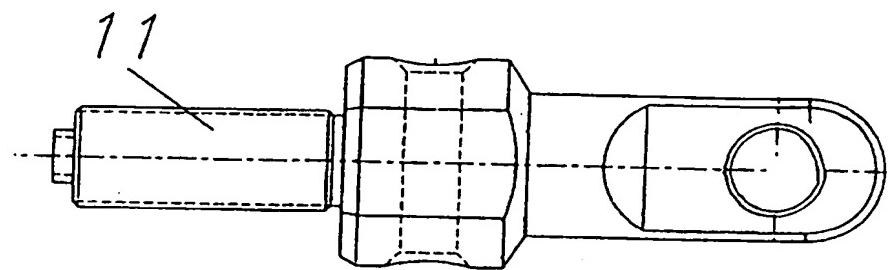
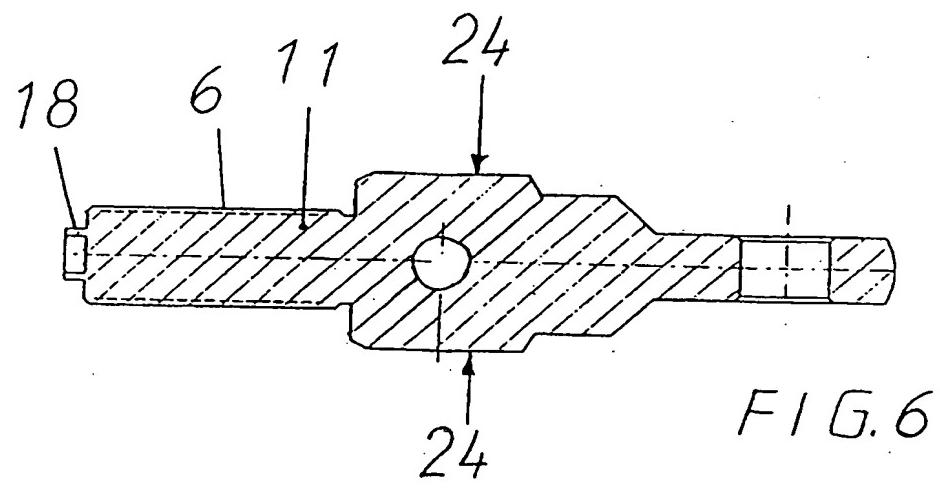
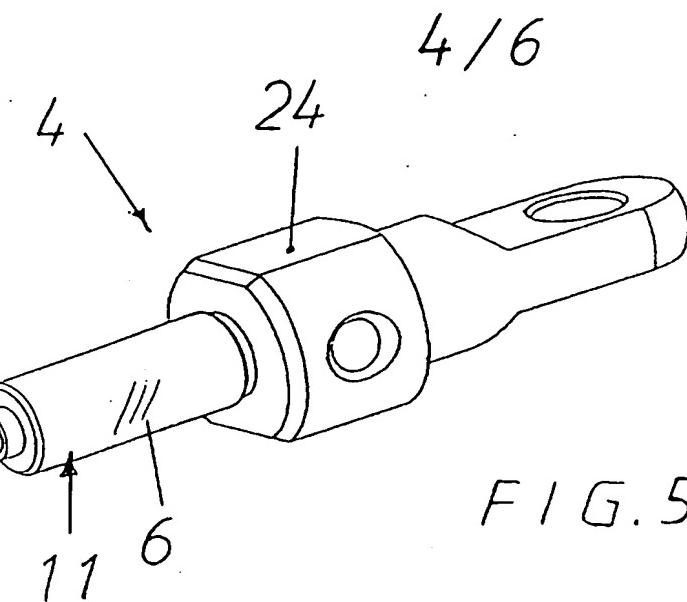
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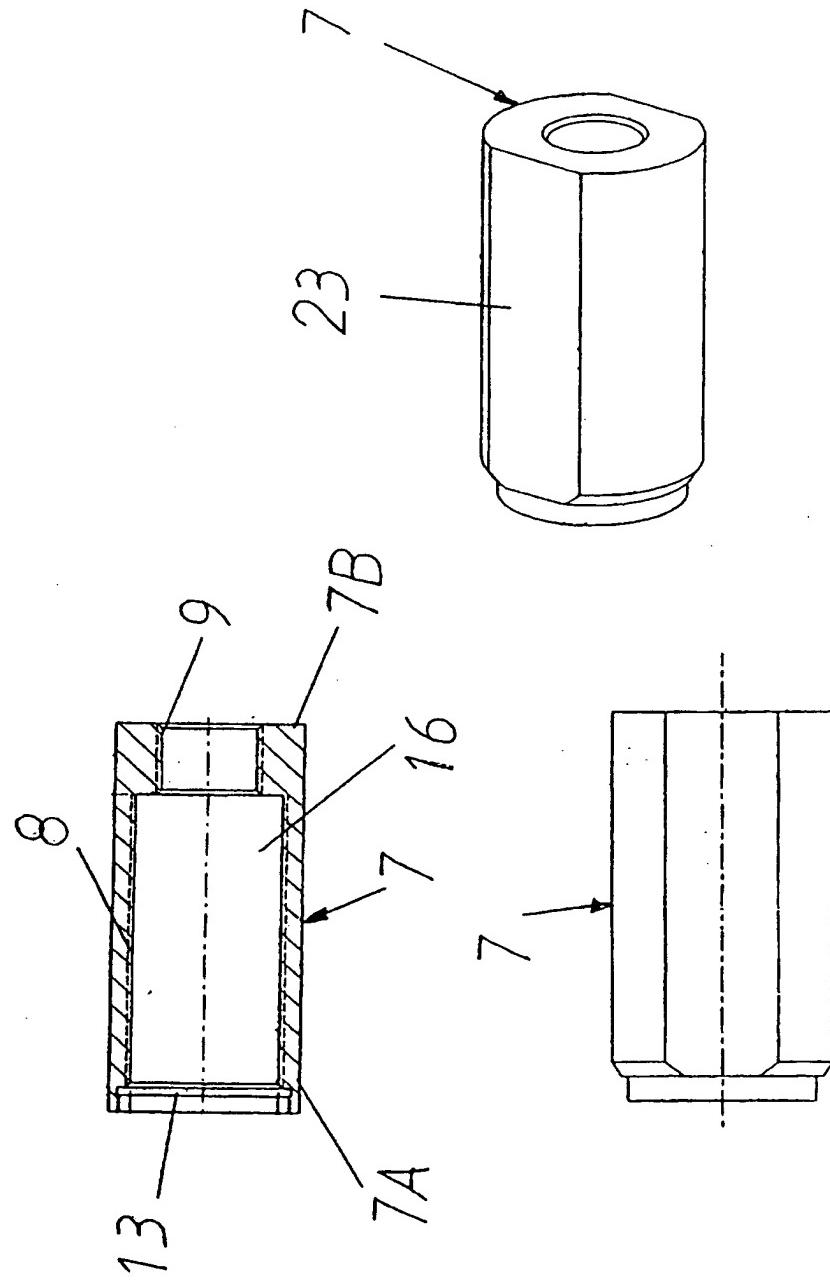


FIG. 8

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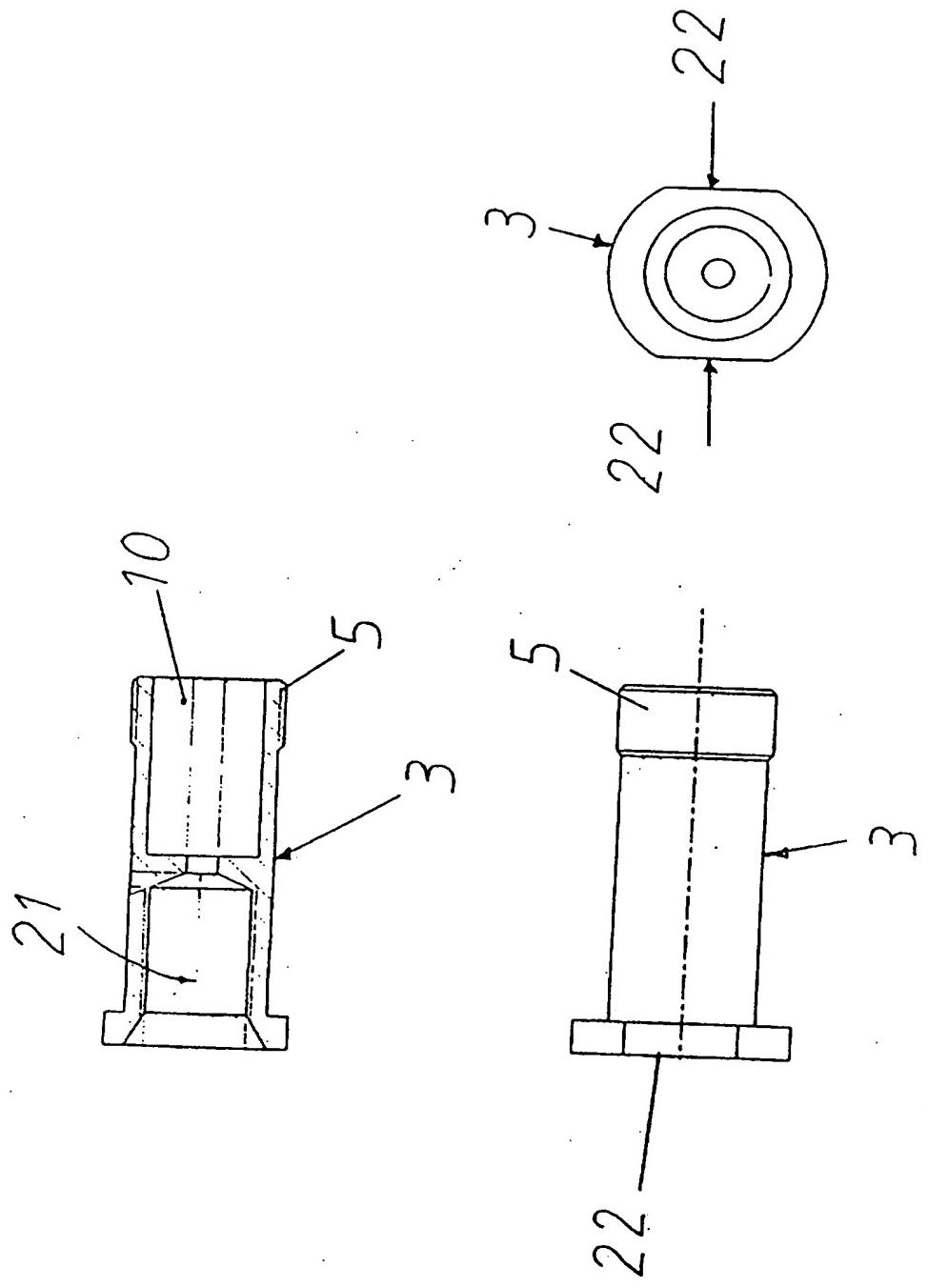


FIG. 9

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 97/01362

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: F16G 11/12 // F16B 7/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: F16B, F16G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 3245930 A1 (MÖLLER, FRIEDRICH), 14 June 1984 (14.06.84) --	4, 5
Y	NO 162929 B (RIGGARNA LARSSON & JOSEFSSON AB), 27 November 1989 (27.11.89) --	1-5
Y	DE 2310152 A (BENTHIEN, HERMANN), 5 Sept 1974 (05.09.74) -- -----	1-5

 Further documents are listed in the continuation of Box C. See patent family annex.

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/SE 97/01362

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3245930 A1	14/06/84	NONE	
NO 162929 B	27/11/89	NONE	
DE 2310152 A	05/09/74	NONE	

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